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Public private partnerships for healthcare infrastructure and related services:  
a review of benefits and costs

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ABSTRACT

Although the use of PPPs is endorsed by agencies at the national and supranational levels, there is little guidance for decision-makers on what good outcomes look like and the circumstances in which such outcomes are likely to occur. Enhanced understanding of these issues can improve the governance of large-scale contracting in the health sector. Drawing on a narrative review of the available theoretical and empirical research, this paper evaluates: (1) the benefits that PPPs generate compared to alternative mechanisms of delivery; (2) their additional costs; and (3) the endogenous and exogenous factors that influence these outcomes. The evidence shows that PPPs hold promise for decision-makers who prioritise *certainty*. However, PPPs are also associated with additional transaction and financing costs. The key decision that policymakers and managers need to make about their use of the PPP model is, therefore, how much extra they are prepared to pay to achieve predictable cost, quality and service outcomes. How much they *will* have to pay is a function of a set of contextual variables which are readily amenable to policy action.

Keywords: Public private partnership, PPP, private finance, benefits, costs, cost of capital

Word Count: 2488

1. INTRODUCTION

Increasingly, health sector policymakers are engaged in public-private partnerships (PPPs) in which private companies are contracted by governments to finance and deliver new health infrastructure and related services (Acerete et al., 2012). This model of PPP originated in high-income countries, such as Australia, Canada, France, Italy and the United Kingdom, but is now a routine form of procurement in many other jurisdictions (Hellowell, 2012).

Although the use of PPPs is endorsed by governments and agencies at both national and supranational levels (Montagu and Harding, 2012), the evidence about their outcomes is mixed (Roehrich et al, 2014), and there is little guidance for decision-makers on the circumstances in which the model is likely to deliver good outcomes. Better understanding of these issues within healthcare organisations is needed to ensure that appropriate PPP strategies are selected, and that the related processes are well-designed and managed.

This article begins to address this need, and draws on a narrative review<sup>1</sup> of theoretical and empirical research in order to evaluate: (1) the *benefits* that PPPs can

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<sup>1</sup> The search strategy focused on theoretical and empirical studies that provide insights relevant to the operation of PPPs in the health sector, even if they do not focus on the health sector directly (see Roehrich et al, 2014 for a systematic review of PPPs in the health sector). Peer reviewed literature was obtained from online bibliographic databases, alongside reference lists from papers obtained in database searches. In addition, the

generate compared to alternative mechanisms of delivery; (2) the sources of *additional costs*; and (3) the endogenous and exogenous factors that influence these outcomes.

## 2. BENEFITS FROM PUBLIC PRIVATE PARTNERSHIPS IN THE HEALTH SECTOR

The economic case for the PPP model resides in its ability to allocate the risks associated with delivering infrastructure and related services more effectively than other approaches. If it does so, the model may reduce the whole-life costs of providing goods at a given quality (Väilä, 2005). The transfer of risk is normally achieved in two ways. First, the payment to the private operator is made *as, when, and to the extent that* the outputs specified in the contract are delivered, creating an incentive for the operator to ensure that the goods being purchased are routinely available for use at the agreed standard (Farquharson et al, 2011).

Accordingly, while the payment to the private operator is, effect, a prospective global budget,<sup>2</sup> it is paid retrospectively and includes an element that is conditional on performance – specifically, performance in terms of the *availability* and *quality* of contracted assets and services (Hellowell et al, 2015). Therefore, if the payment is linked to key performance indicators that are *well-specified* and *measurable* (De Bettignies and Ross 2004, 2011), and adequate arrangements are in place for the monitoring and verification of performance (Domberger and Jensen 1997), and contractual relations are broadly equitable between the parties (Lonsdale and Watson 2007), then any failure of the private operator to achieve specified outcomes results in *financial losses* (Reiss 2015). The operator has a strong incentive to avoid losses and, therefore, to deliver on its contractually-specified obligations.

Second, as the payment mechanism effectively caps the operator's total income, there is an incentive for the operator to minimise its costs of production. Furthermore, a distinctive feature of PPPs is that they 'bundle' together a range of activities (design, construction, operations & maintenance, and various categories of service provision) in a single contract, such that the operator of a PPP has both the *capability* and the *incentive* to exploit economies of scope (Schleifer 1998, Grossman and Hart 1986, Hart 2003, Iossa and Martimort, 2012), for example by investing in innovations which lower production costs or enhance quality (Barlow and Köberle-Gaiser 2009).<sup>3</sup> If it is further assumed that bidding processes are competitive, and private operators can foresee the opportunities to minimise costs, the incentive framework may reduce the price of contracts for the purchaser.

However, empirical evidence on the question of whether PPPs can be relied on to deliver *lower* costs and *better* quality in comparison with alternative mechanisms is mixed (Acerete et al., 2012). In general, the evidence suggests that PPPs hold promise for decision-makers that wish to achieve greater *certainty* over outcomes such as cost, quality and service volumes than may be achievable via alternative mechanisms of delivery (National Audit

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websites of a number of organisations, including supranational agencies, government ministries and official audit bodies, were searched, and relevant reports and briefings were included in the review.

<sup>2</sup> That is, the payment rate is agreed *before* the delivery of goods and is based on the forecast costs of production for the private operator, including the cost of capital. However, billing and payment take place *after* the delivery of goods.

<sup>3</sup> It may also be noted that the PPP model may help to address incentive problems within the public sector in terms of a tendency to allow the liability associated with the need to replace fully or almost fully depreciated assets to be deferred to future generations.

Office 2003; 2005). Certainty over outcomes is evidently a different matter to how desirable are those outcomes (National Audit Office, 2010). After all, a project that delivers the specified goods on budget may still represent poor value for money if the price paid for these outcomes (by society or by specific purchasers) is too high (Hellowell, 2010). And there is, as yet, no conclusive evidence that PPPs have, on average, led to lower costs or contract prices.<sup>4</sup>

One potential reason is that the bundling and risk-transfer features of the PPP model do not appear to have led to the kind of cost-reducing innovations predicted by theory. Barlow and Köberle-Gaiser (2009) undertook interviews to investigate the degree of innovation in the design and construction of PPP hospitals in the UK. They examined evidence from six case studies drawn from early PPP schemes, the identities of which were not revealed. The study showed that, in the view of many contractual stakeholders, the dominance of financial players in project delivery decision served to stifle innovation. The study concluded that PPPs had led to a fragmentation in responsibilities and an inefficient allocation of risks which, far from encouraging innovation, had in fact impeded innovation.

### 3. SOURCES OF ADDITIONAL COSTS

There are several features of the PPP model which may generate additional costs. The most important are *transaction costs* and *finance costs* (i.e. the costs of deploying private capital).<sup>5</sup>

The Transaction Cost Economics (TCE) framework, pioneered by Oliver Williamson (1985; 1990), has been used to provide an account of why PPPs are likely to be associated with higher transaction costs than other forms of delivery (Lonsdale, 2005). In the TCE framework, economic actors – buyers and sellers - are constrained by *bounded rationality*, while the self-interest orientation of actors is characterised by opportunism, or “self-interest seeking with guile” (Williamson 1985, p.47-8). When opportunism on the part of buyers and sellers is combined with bounded rationality, either of the parties may be able to take advantage of lacunae in the other’s knowledge to further its pecuniary interests.

The impact of these behavioural factors on outcomes is dependent on two dimensions of the transaction: *asset specificity* (i.e. the extent to which investments by the parties are specific to the transaction) and *uncertainty* (e.g. the extent to which current objectives are subject to change). In a PPP, both asset-specificity and uncertainty are high. In the former case, both parties face considerable switching costs if they wish to withdraw from the deal (see section 3 for an example). In the latter case, the duration and scope of contracts

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<sup>4</sup> The majority economic theorists that have examined these issues have taken a social welfare perspective when considering costs (Schleifer 1998, Grossman and Hart 1986, Hart 2003, Iossa and Martimort, 2012). Hence, the focus of analysis is on whether PPPs are likely to reduce *the consumption of society’s real resources* relative to alternative mechanisms - and not whether the price paid by the government purchaser is likely to be lower (Hellowell, 2015). There is very little theoretical research on this latter question, despite its obvious relevance for decision-makers. A notable exception is Ross and Ying (2015) in which it is recognised that the government’s objective may be to get the right project delivered for the lowest cost to taxpayers rather than to maximize total social surplus.

<sup>5</sup> Under project finance, providers of *debt* are paid only from the project company’s revenues, without recourse to the providers of *equity*. That is, the project company’s obligations are ring-fenced from those of the equity investors, and debt is secured on the cash flows of the project. These structures involve a large proportion of debt - and the overall cost of capital tends to be higher than in corporate finance structures.

ensure that, in a rapidly changing industry such as healthcare, there is a strong likelihood of contractual incompleteness and a need for renegotiation during the contract (Lonsdale 2005). In this context, the TCE framework predicts that the processes of contract negotiation and monitoring will be extensive, and involve substantial costs for both buyers and sellers.

Dudkin and Väilä (2005) showed that a sample of PPPs undertaken in the UK generated higher transaction costs in the pre-contractual phase – about 10% of the capital expenditure value of the project, on average, for both contracting authorities and preferred bidders, and up to 5% of that value for losing bidders – than other forms of procurement. They attributed this to their longer-term character, greater financial complexity and distinct emphasis on risk-sharing, all of which will tend to increase tendering and negotiating costs.<sup>6</sup>

Turning to the private finance component of the PPP model, sources of additional cost may include transaction costs, including lenders' fees, which are higher than in the case in the liquid and efficient markets for government debt (Hellowell, 2015). For example, equity investors often hedge against certain risks (such as variation in inflation and interest rates) by purchasing financial derivatives. The associated fees and costs, which add to the costs of production for the private operator – and hence, ultimately, to the price charged to the public sector (Yescombe, 2008)<sup>7</sup> – have no equivalent in the other mechanisms of delivery.

In addition, the rates of return on commercial debt and equity may add to costs relative to other delivery mechanisms (Hellowell and Vecchi, 2012). The interest cost on private finance has been an important focus of academic research and official audit (e.g. McKee et al, 2006; National Audit Office, 2015). It is normally a multiple of the interest rate that the government pays on its own debt. However, it is far from clear that this is a relevant comparator, since debt is only one source of a government's income, alongside taxes, fees, asset sales, interest on cash holdings, and so on. Determining the right approach to estimating the latter varies according to who is doing the analysis. From the perspective of a Ministry of Finance, the cost of using public finance now to invest in a project (as in most forms of conventional procurement), rather than 'smoothing out' those expenditures over the contract period (as in a PPP) is equal to the value of the *next best* alternative government spending project. In contrast, from the point of view of a Ministry of Health, or an individual healthcare organisation,<sup>8</sup> the cost of loans from national/subnational governments, or from debt instruments issued directly by the organisation, may be the most relevant comparator.

In both cases, evidence shows that costs are likely to be lower than the private operator's weighted average cost of capital (Hellowell and Vecchi, 2010, National Audit Office, 2015, Colla et al, 2015). Hence, for PPPs to represent a cost efficient solution, any savings secured due to the incentives described in section 1 (above) must be sufficient to offset the higher interest costs of private finance, alongside the additional transaction costs. As noted, the jury is still out on whether this is a plausible outcome, and most analyses give considerable grounds for scepticism (e.g. Vining et al, 2005; Hellowell, 2010; Winch and Onishi, 2012).

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<sup>6</sup> For more on this point, e.g. Boardman and Vining (2004) and Daniels and Trebilcock (1996).

<sup>7</sup> We will also see in sections below that such instruments can increase considerably the costs to the public sector of terminating PPP contracts.

<sup>8</sup> Much of the literature on PPPs in the health sector implicitly adopts this perspective (see e.g. Pollock et al, 2011).

#### 4. WHAT DETERMINES THE BENEFITS AND COSTS?

The sections above have recorded a number of variables that are likely to affect the outcomes from PPPs in terms of their ability to deliver goods in accordance with the timetable, cost and level of quality set out in the contract. In respect of endogenous variables (i.e. those that are relatively amenable to being addressed through policy action), the economic benefits of PPPs are dependent on adequate arrangements being in place, or put in place, for the *specification*, *monitoring* and *verification* of contractor performance. All of these activities are very costly. But if they are not effectively undertaken, contracts do not generate the risk transfer mechanisms needed to create the incentive framework that gives rise to good outcomes. Hence, decision-makers need to assess whether they are able to:

- (i) identify their long-term service requirements;
- (ii) codify these in a set of measurable indicators;
- (iii) monitor outcomes against those indicators; and
- (iv) pay when those outcomes are acceptable, and ensure they do not pay when they are not.

It is apparent that, where government capacity is limited, PPPs – especially in complex areas of activity, such as acute diagnostic, therapeutic and curative care (i.e. the services delivered in *hospitals*) - are unlikely to yield good outcomes, even in terms of cost- and quality-certainty.<sup>9</sup> However, where markets are mature and purchasers have the skills required to write and enforce contracts, the empirical evidence suggests that such predictability is achievable.

In terms of exogenous variables (that is, those that are *not* amenable to being addressed through policy action), it is evident that the price paid for such certainty could be high unless there is adequate competition for both the operational and financial components of the deal. On the operational side, decision-makers should consider in which service areas the private sector is large enough, diverse enough and competent enough to generate meaningful competition. It is likely that more complex service areas are associated with greater concentration in the market. More competition might be feasible for simpler facilities and simpler services – suggesting these may be a more appropriate starting point.

On the financing side, securing low interest costs has become difficult everywhere. In OECD markets, changes in financial sector regulation and concerns about the quality of assets held by banks have restricted long-term lending across the world and increased its price.<sup>10</sup> Investors are likely to favour mature markets in which contract models are well-understood and have a track record of delivery (and a strong pipeline, to justify the transaction costs). Lenders will similarly favour tried and tested approaches, and contract forms that facilitate the use of assets with relatively short maturities (Hellowell et al, 2015). In developing countries, financial markets are often ill-equipped to provide the long-term financing

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<sup>9</sup> While evidence is lacking, it may be that simpler PPPs that focus on investment in specific facilities, and/or the management of specific clinical services (e.g. ambulatory surgery centres, diagnostic services, renal dialysis), may be more appropriate in such contexts.

<sup>10</sup> Basel III stability ratios, in particular, make long-term loans very expensive in terms of banks' risk-weighted capital adequacy requirements (Reviglio 2012).

required for infrastructure projects. In sub-Saharan Africa, for instance, the longest available loan tenor is five years or less, and even where longer loan terms are available, interest rates are typically high compared with OECD countries (Irving and Manroth 2009). Although, in such contexts the economic costs of using public funds to pay *up-front* for an investment, rather than allowing such costs to be amortised over the contract period, are likely to be high, it is quite likely that the financial costs of private finance will be higher still.

## 5. CONCLUSION

There may be considerable benefits to the bundling and risk transfer features of the PPP model, and much of the theoretical research has emphasised such benefits. However, these studies are almost exclusively based on deductive reasoning and, elegant as the analyses may be, they are unsupported by empirical data. It is apparent from the empirical evidence that PPPs hold promise for decision-makers who prioritise *certainty* - about costs, quality and service volumes. However, PPPs are also associated with additional costs – especially transaction costs and the costs of private financing. Perhaps the key decision that policymakers and managers need to make about their use of the PPP model is how much extra they are prepared to pay to achieve predictable cost, quality and service outcomes.

The balance of benefits and costs are dependent on a range of variables. Decision-makers need to pay close attention to such variables when deploying this complex and challenging mechanism of delivery. Such variables can be divided into endogenous and exogenous variables – though, even in the former case, their amenability to policy action may be limited. The capacity of public organisations to define what they need over the long duration of the contract, and to verify that this has or has not been delivered by the contractor, is dependent on the availability of specialist human resources. Putting this in place will often require ambitious cross-sectoral action. In terms of the external environment, adequate competition in supply, and the availability and price of capital finance, will influence the scale of additional costs. Decision-makers need to consider in which service areas the capacity of the private sector, including investors, will be sufficient to generate meaningful competition.

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